

FLAVONOLS OF *Asperula cynanchica*

V. I. Romanenko and M. I. Borisov

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By qualitative reactions and paper chromatography in the ethyl acetate-formic acid-water (10:2:3) and 15% acetic acid systems we have found not less than ten substances of flavonoid nature in the herb *Asperula cynanchica* L., family Rubiaceae collected in July, 1970, in the environs of the village of Belki, Sumy oblast.

An aqueous extract obtained by concentrating the 70% ethanolic extracts of 1 kg of the herb was purified by chloroform, evaporated to the consistency of a syrup, and treated with 200 ml of methanol and 3 volumes of acetone. The amorphous precipitate that deposited was separated off, the solution was evaporated to dryness, the residue was dissolved in 350 ml and extracted with ethyl acetate (8×350 ml). Concentration of the ethyl acetate extract and its additional purification on a column of Kapron gave a flavonoid (1) with mp 231-233°C (60% ethanol).

Hydrolysis with 3% sulfuric acid gave 64.2 g of the aglycone, with mp 310-312°C, and in the acid hydrolyzate D-galactose was identified by paper chromatography.

On the basis of qualitative reactions and UV and IR spectroscopy, and also the detection in the products of alkaline hydrolysis of phloroglucinol and 3,4-dihydroxybenzoic acid, the aglycone of substance (1) was identified as quercetin.

The results of a spectral analysis of the quercetin and of the glycoside in the UV region showed the substitution of the C₃ atom with the sugar residue [2].

The presence of three absorption bands in the 1100-1010 cm⁻¹ region and of a band at 890 cm⁻¹ shows that the galactose is attached to the quercetin by a β-glycosidic bond and is present in the pyranose form [1]. Thus, the glycoside (1) can be characterized as quercetin 3-O-β-D-galactopyranoside (hyperoside).

The aqueous residue was deposited on a column of polyamide sorbent, washed free from impurities with water, and eluted with aqueous ethanol of various concentrations to give substances 2, 3, 4, and 5.

Substance (2) with mp 191-192°C was identified from the products of acid hydrolysis, a comparison of UV and IR spectra, and a mixed melting point, as rutin.

Substances 3, 4, and 5 are quercetin glycosides, and their chemical study is continuing.

LITERATURE CITED

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